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Activity Program

OXC-64-4

25X1

- Ext. 6278

1. Purpose:

To re-design the response and operational characteristics of the AN/ARC-50 Communications-Navigation system to conform to OXCART operational requirements. (The AN/ARC-50 was originally Air Force developed special communications equipment designed to satisfy specific air traffic control requirements within the Berlin area. Recent OXCART oriented tests have proven the need for further refinements in the ranging principles employed in order to make the equipment more adaptable to OXCART operations.) Significant desirable improvements include:

A. Reduction in the time required for an INTERROGATOR to secure range readout from 40 seconds at a distance of 1,000 miles to 4 seconds for any distance within the capability of the equipment.

B. Addition of automatic RESPOND function, not requiring any participation by a RESPONDER operator when range measurement is performed by an INTERROGATOR.

C. Addition of RANGE ADDRESS function permitting selective ranging between an INTERROGATOR and any one of several different RESPONDERS on a single code-frequency channel.

D. Addition of CONTINUOUS-RANGE function which can provide range information automatically updated at 8 second intervals at both terminals of a cooperative range link.

E. Addition of a capability for an INTERROGATOR to automatically extend the transmission time of a RESPONDER, to permit the INTERROGATOR to secure bearing information without requiring RESPONDER discipline.

F. Retention of normal communications capability.

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2. Description of Work or Service Required:

A. The work required has been broken into two steps, as follows:

(1) Research and development resulting in the re-design and test of six (6) airborne AN/ARQ-23 systems. Costs -

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(2) Re-work remaining 44 airborne systems and five ground stations. Costs @

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B. Sub-components requiring re-design or substantial modifications are as follows:

(1) Control Unit for all installations must be completely re-designed.

Part No. 708799-801 (for AN/ARQ-23 installations in KC-135 and A-12)

Part No. 714363-801 (for AN/GRC-115 ground station installations)

(2) Generator Module must be completely re-designed.

Part No. 714014-801 (common to all three installations)

(3) Programmer Module must be completely re-designed.

Part No. 714013-801 (common to all three installations)

(4) Counter Module will be substantially modified.

Part No. 713011-801 (common to all three installations)

(5) Modem Module will be modified to a certain extent

Part No. 714015-801 (common to all three installations)

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(6) Receiver Module will be modified to a minor extent.

Part No. 714012-801 (common to all three installations)

(7) Chassis for Receiver-Transmitter will be modified to accept module changes.

Part No. 714009-801 (for KC-135 installation)

Part No. 714009-802 (for A-12 installation)

Part No. 713971-801 (for Ground Station installation)

3. Expected Additional or Related Work:

Anticipated AN/ARC-50 procurement to satisfy R-12 requirements will reflect the above-outlined changes. No information is immediately available on the costs of new systems reflecting these changes. It is understood that present plans call for an initial procurement of nine (9) AN/ARC-50 airborne systems (AN/ARQ-23) for the R-12 program.

4. Total Estimated Cost:

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[redacted] has submitted a cost proposal covering [redacted] work would be accomplished at the [redacted] California. The total estimated costs amount to [redacted] 25X1

5. Source of Funds:

Funds are not available for this item from present OSA allocations. Request that funds be sought from ~~Agency~~ Reserve (or NRO).

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6. Delivery Schedule or Period of Performance:

The contractor has indicated that the first step, re-design of six (6) systems, can be completed in six (6) months. The contractor has further indicated that the second step can be completed fourteen (14) weeks after approval of a prototype model accomplished in the first step.

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7. Remarks:

None.

8. Signature of Requester:

[Redacted Signature]

/Acting Chief
Communications Division, OSA

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APPROVED or Recommended for APPROVAL:

[Redacted Signature]

JACK C. LEDFORD
Colonel, USAF
Assistant Director
(Special Activities)

3 OCT 1963

Date

APPROVED or Recommended for APPROVAL:

Deputy Director
(Science and Technology)

Date

APPROVED:

Deputy Director of Central Intelligence

Date

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